

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A scanning optical apparatus in which at least one beam emitted from light source means is deflected by deflecting means, the beam deflected by said deflecting means is caused to be imaged on a surface to be scanned by imaging means having a diffracting surface on at least one surface thereof to be scanned on said surface to be scanned, wherein of diffracted lights diffracted by said diffracting surface, relative to the diffracted light of an order used to form a spot on said surface to be scanned, the width of the expanse of the stray light of one of unnecessary diffracted lights of the other orders undergoing surface-reflection by a refracting surface of said imaging means upon incidence on said surface to be scanned is designed to be wider in the sub-scanning direction than in the main scanning direction.

2. (Currently Amended) A scanning optical apparatus according to Claim 1, wherein ~~the stray light~~ of said unnecessary diffracted light is once condensed between said diffracting surface and said surface to be scanned in the sub-scanning cross section.

3. (Original) A scanning optical apparatus according to Claim 2, wherein said imaging means is provided with a diffracting optical element having the refracting surface on the incidence surface thereof and having the diffracting surface on the exit

surface thereof, and the power of said refracting surface in the sub-scanning direction is positive.

4. (Currently Amended) A scanning optical apparatus according to Claim 1, wherein ~~the stray light~~ of said unnecessary diffracted light is limited by a member disposed in the optical path between said diffracting surface and said surface to be scanned.

5. (Currently Amended) A scanning optical apparatus according to Claim 1, wherein the width of the expanse of the stray light of said unnecessary diffracted light satisfies the condition that

$$\Phi_s/\Phi_m > L_o/L_m,$$

(where Φ_s : the width of the expanse of the stray light of the unnecessary diffracted light on the surface to be scanned in the sub-scanning direction;

Φ_m : the width of the expanse of the stray light of the unnecessary diffracted light on the surface to be scanned in the main scanning direction;

L_m : the scanning width ~~of the stray light~~ of the unnecessary diffracted light;

L_o : the effecting scanning width.)

6. (Original) A scanning optical apparatus according to Claim 1, wherein when said order used is defined as n and said other orders are defined as m, the condition that

$$4 \leq m/n \leq 7$$

is satisfied.

7. (Original) A scanning optical apparatus according to Claim 1, wherein the diffracted light of said order used is a transmitted diffracted light of the first order, and said unnecessary diffracted light is a reflected diffracted light of the sixth order.

8. (Currently Amended) An image forming apparatus comprising:
a scanning optical apparatus according to any one of Claims 1 to 7 or 10 to 13;
a photosensitive member disposed on said surface to be scanned;
a developing device for developing an electrostatic latent image formed on said photosensitive member by a beam scanned by said scanning optical apparatus as a toner image;
a transferring device for transferring the developed toner image to a transferring material; and
a fixing device for fixing the transferred toner image on the transferring material.

9. (Currently Amended) An image forming apparatus comprising:
a scanning optical apparatus according to any one of Claims 1 to 7 or 10 to
13; and
a printer controller for converting code data inputted thereto from an
external device into an image signal and inputting it to said scanning optical apparatus.

Please add Claims 10 to 13, as follows:

10. (New) A scanning optical apparatus including incidence optical means for causing at least one beam emitted from light source means to be made incident on deflecting means; and imaging means for imaging light beams reflected and deflected by the deflecting means on a surface to be scanned, the imaging means including a diffracting optical element having a diffracting surface on light exit surface thereof, in which first order diffracted light generated during passing through the diffracting surface disposed on the diffracting optical element is imaged on the surface to be scanned by the imaging means.

wherein the following conditional expressions are satisfied,

$$\Phi_s/\Phi_m > L_o/L_m,$$

$$\Phi_s > \Phi_m,$$

(where Φ_s : the width of the expanse in the sub-scanning direction of sixth-order unnecessary diffracted light, which is generated on the diffracting surface and reflected on

incident surface of the diffracting optical element and
with which the surface to be scanned is scanned in
the main scanning direction;

Φ_m : the width of the expanse of the sixth-order
unnecessary diffracted light on the surface to be
scanned in the main scanning direction;

L_m : the scanning width of the unnecessary diffracted light
on the surface to be scanned;

L_o : the effective scanning width of the first order
diffracted light on the surface to be scanned.)

11. (New) A scanning optical apparatus according to Claim 10, wherein
the diffracting optical element is made of plastic material.

12. (New) A scanning optical apparatus including incidence optical means
for causing at least one beam emitted from light source means to be made incident on
deflecting means; and imaging means for imaging light beams reflected and deflected by
the deflecting means on a surface to be scanned, the imaging means including a diffracting
optical element having a diffracting surface on light exit surface thereof, in which first
order diffracted light generated during passing through the diffracting surface disposed on
the diffracting optical element is imaged on the surface to be scanned by the imaging
means,

wherein an optical power of an incidence surface of the diffracting optical element in the sub-scanning direction is positive; and

wherein the following conditional expressions are satisfied,

$$\Phi_s/\Phi_m > L_o/L_m,$$

$$\Phi_s > \Phi_m,$$

(where Φ_s : the width of the expanse in the sub-scanning direction of sixth-order unnecessary diffracted light, which is generated on the diffracting surface and reflected on incident surface of the diffracting optical element and with which the surface to be scanned is scanned in the main scanning direction;

Φ_m : the width of the expanse of the sixth-order unnecessary diffracted light on the surface to be scanned in the main scanning direction;

L_m : the scanning width of the unnecessary diffracted light on the surface to be scanned;

L_o : the effective scanning width of the first order diffracted light on the surface to be scanned.)

13. (New) A scanning optical apparatus according to Claim 12, wherein the diffracting optical element is made of plastic material.